

# AMATEUR RADIO



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by the W.I.A. (Vic. Div.). Official Organ  
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JULY, 1934

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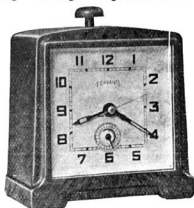
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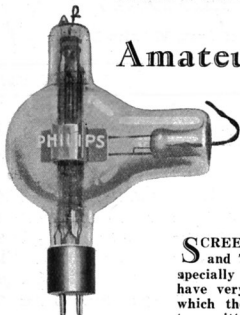
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Should you not receive your copy of "Amateur Radio," notify your Divisional Secretary at once.

# Screen Grid Valves

## For Amateur Transmitters



Types:  
QB 2/75, QC 05/15

$\frac{1}{4}$  of actual size.

**S**CREEN GRID Transmitting Valves for 15 and 75 watts have been designed by Philips specially for use by amateurs. These valves have very important properties, as a result of which the construction and adjustment of the transmitter can be greatly simplified. The control-grid and anode of these valves are screened from each other by a screen-grid, thus reducing anode-control grid capacity to a minimum. When used as H.F. amplifier or frequency multiplier in controlled transmitters there is practically no reaction of the anode circuit on the grid circuit, and self-oscillation is impossible with screening outside the valve. Neutralisation is unnecessary, so it is very easy to alter the wave-length at short notice. These screen-grid valves give greater amplification than triodes under the same conditions.

Table A shows the various electrical properties of the Philips amateur transmitting valves:—

### CHARACTERISTICS:

Table A. Type.	Screen Grid Valves.	
	QC 05/15.	QB 2/75
Filament voltage .....	4.0	10.0
Filament current* .....	1	3.25
Saturation current* .....	400	2,000
Anode voltage .....	400-500	2,000
Screen grid voltage .....	75-125	300-500
Max. anode dissipation .....	15	75
Anode dissipation on test .....	20	100
Max. screen grid dissipation .....	3	15
Amplification factor* .....	225	200
Mutual conductance (slope)* .....	1.4	1.4
Int. resistance* .....	160,000	150,000
Anode-grid capacity .....	.001	.02
Max. diam of bulb .....	50	100
Max. length .....	160	210

\*Approximate values.

# PHILIPS

## TRANSMITTING VALVES

## EDITORIAL

Within a very short time of the appearance of this editorial in OUR magazine my year of office as Victorian State President will have terminated, and another (and I hope more worthy) member will have been installed in the Presidential chair. It is therefore with great pleasure that I accept the invitation of the Magazine committee to use this month's "Editorial" to give to "Hams" generally some idea of what has been accomplished during the past financial year, i.e., July 1, 1933, to June 30, 1934. Probably the greatest effort, and perhaps the one which will have the most effect on Australian Amateur Radio enthusiasts, is the publication of "Amateur Radio," which I am pleased to say has had a marvellous reception from "Hams," not only in our own country, but internationally as well. It was with a certain amount of trepidation that the Council of the Victorian Division undertook the organising and financing of the project. This is a much greater responsibility than may at first be apparent to one not immediately concerned in its production, and I can assure "Hams" generally that had it not been for our absolute faith in the loyalty of the gang, this responsibility would not have been accepted. Whilst our efforts in producing the magazine have, according to reports received, been an unqualified success, the financial side of it is still providing us with more worry than it should. This state of affairs can easily be eradicated by just a little harder effort on the part of our Interstate brethren. The highest praise is due to the N.S.W. Division (A.R.A.) for their magnificent effort in the interest of OUR OWN publication, and, while I feel that all States have worked hard in its interests, I must confess to the thought that a greater PUSH from us all would bring the desired result. Another 200 copies issued per month would bring a fine feeling of security in its wake, and

just ONE full page advertisement from each of the States other than Victoria would, with the ones we already have, make the magazine absolutely secure. Personally I am so certain of the genuineness of all "Hams" that I refuse to consider the possibility of any one of them letting his gang down, and so I confidently appeal to ALL for just that one big effort to assure the success of OUR MAG. Regarding the general working of the division, the annual report to be presented at the Annual General Meeting (at which all members should make it a point to be present, in their own interests) will show a remarkably satisfactory state of affairs, which I am sure will have a pleasing appeal to all members. Particularly is this the case from a financial viewpoint, the position in that respect being that, for the first time for some years, our budget has been balanced. To effect this desirable object your Council has worked untiringly, giving up to affairs of the Institute much valuable time, which in many cases should have been devoted to their personal business. A further source of gratification is the splendid increase in our numerical strength, not less than seventy-six (76) new members having been enrolled, and this, coupled with the fact that several unfinancial members have paid up back subscriptions, puts the Institute in a very enviable position. In this regard too much praise cannot be given to our Hon. Secretary (Mr. J. Winton), and his very able assistant, Mr. T. Powers, who have been indefatigable in their efforts in this direction, and they deserve the special thanks of all for what they have accomplished. At the present time your Council are endeavouring to obtain more suitable accommodation, in order that we may function more in keeping with our avowed objective. It is impossible to hold proper meetings in comfort in the present confined space, and the possibility of attempting transmis-

sions from these premises would be nothing short of farcical. It is quite possible that even yet the annual meeting will be held in a new home, but not very probable. In conclusion, as one who knows the needs of your Institute backwards, I very strongly appeal to all members in the coming year for THREE things:—(1) Absolute loyalty to the new President and Council about to be elected; (2) a very special effort to bring all "Hams"

into the fold; (3) every unfinancial member to make himself financial; and now, in saying farewell to you all as President and Chairman of the Council, everything that has been successfully accomplished is solely due to my colleagues, and to them I offer my sincerest thanks, and I wish to have them all know that I never hope to meet a finer or more enthusiastic body of gentlemen.—73.

GEORGE F. THOMPSON.

## Audio Amplifiers

By H. R. James, VK3LH.

Audio amplifiers? "Oh," you say, "that's old stuff." They are either resistance, transformer, impedance or direct coupled. "Oh, yes, I know all about them." Maybe you do, but if you do you ought to be able to answer these questions.

(1) Suppose you have a power amplifier with two 250's in push-pull. How much gain ought the amplifier to have in order to get full power from the 250's and only require a reasonable voltage from the detector or pick-up?

(2) Suppose you want to build a set for operation on batteries. From the standpoint of comparative gain,

you determine how much A.C. voltage was required across the input to produce, say, 20 volts across the output?

Do you know the answers? If you do, then you know your amplifier theory pretty well. But if you don't then read on.

In analysing an audio amplifier from almost any angle the place to start is at the output, working back towards the input of the amplifier. We generally know how much power output we want or what type of tube we are going to use. On either of those points depends the design of our amplifier.

First of all, let us look at the power stage. Power tubes have certain definite output ratings. For example, a 171A is rated at 0.7 watts; the 250 is rated at 4.65 watts. But it does not mean that if we use a single 250 we just naturally get 4.65 watts. The rating of 4.65 watts is simply an indication of the maximum power which the 250 can supply, and the actual power output may be anything from 4.65 watts down to zero, depending upon the amount of A.C. voltage we apply to the grid of the tube. This is the important factor. Fig. 1 is a simple single tube amplifier. To analyse this circuit with regard to A.C. input voltage and A.C. output power the important characteristics are:—The A.C. input voltage, the amplification constant of the tube, the plate resistance of the tube, the impedance of the load in the plate circuit and finally the D.C. grid and plate potentials. If ( $E_i$ ) is the A.C. in-

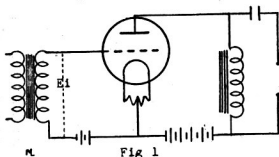
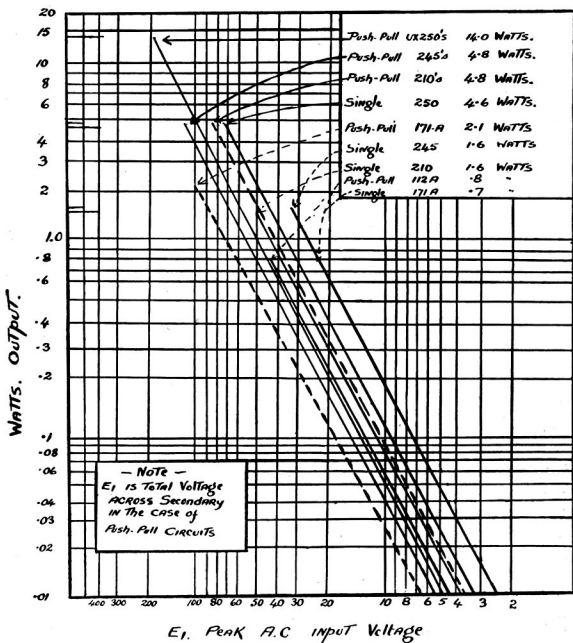


Fig 1

power output and plate current consumption what type of amplifier would you use, what type of tube in last stage? Should the power stage be single tube or push-pull?

(3) Can you determine, without going to a lot of testing, how much "C" bias is required on a particular tube in an amplifier, to prevent that tube from overloading?

(4) Suppose you had a two-stage transformer coupled amplifier, could



put voltage, then the A.C. voltage  $E_p$  developed in the plate circuit of the tube will be (1)  $E_p = \mu E_i$ , where  $\mu$  is the amplification constant of tube. This A.C. voltage in the plate circuit will force an  $I_p$  current through the plate resistance of the tube, and the load resistance. The A.C. plate current will therefore be

$$(2) I_p = \frac{\mu E_i}{R_p + R_o}$$

where  $R_p$  is the plate resistance of tube and  $R_o =$  load resistance.

Now the power output ratings of all power tubes are based on the assumption

that the tube is working into a load resistance equal to twice its plate resistance, under which conditions the tube can supply the maximum amount of undistorted power. That is (3)  $R_o = 2R_p$ .

Substituting this value in the above formula we have

$$(4) I_p = \frac{\mu E_i}{R_p + 2R_p} = \frac{\mu E_i}{3R_p}$$

Now the power developed in a resistance is equal to the resistance

times the current squared. Therefore, the power (P) delivered by the tube will be equal to (5)  $P = I_p^2 R_o$ , and substituting the value of  $I_p$  given in equation (4) we have

$$(6) P = \frac{\mu E_i}{3R_p}^2 R_o = \frac{\mu^2 E_i^2}{9R_p^2} R_o.$$

Since  $R_o = 2R_p$ , the formula can be simplified to

$$(7) P = \frac{\mu^2 E_i^2}{9R_p^2} 2R_p = \frac{2\mu^2 E_i^2}{9R_p}$$

Now the maximum amount of power a tube can deliver is ordinarily limited by the grid bias on the tube, for the peak value of the input A.C. voltage must not exceed the D.C. grid bias. If we revise the preceding formula so that it is in terms of peak A.C. input voltage we have

$$(8) P = \frac{\mu^2 E_i^2}{9R_p}$$

where  $E_i$  = peak A.C. volts applied to grid of tube  $\mu$  = amplification constant of tube and  $R_p$  = plate resistance of tube.

This formula can be simplified for any given type of power tube by substituting in the formula the proper values of plate resistance and amplification factor. For example, for the 245 tube  $R_p = 1900$  ohms and  $\mu = 3.5$ , therefore

$$P = \frac{3.5^2 \times E_i^2}{9 \times 1900} = \frac{.67E_i^2}{1000}$$

This formula gives the power in watts. Since we frequently rate tubes in terms of milliwatts we can multiply the formula by 1000 to get power in milliwatts. That is  $P_{mw} = 0.67E_i^2$ . These simplified formulae have been worked out for the most commonly used power tubes, both single and push pull. They are given in Table I.

We can check the accuracy of these formulae by an example, for the maximum value of  $E_i$  can be taken as equal to the D.C. bias on the tube. The 171A requires a bias of 40 volts;

$$\text{therefore } P = \frac{40^2}{2.1} = \frac{1600}{2.1} = 730$$

milliwatts, and the tube is rated at 700, so our formula is accurate within about 4. per cent., more than sufficiently accurate for practically all purposes.

Now, knowing our formulae are correct we are ready to determine how the output of any tube varies with the A.C. input voltage. To do this we need simply to substitute for  $E_i$  various values from zero up to a value equal to the rated "C" bias on the tube. This has been done, and the results are summarised in the curves of Table 1. For the present let these curves serve simply to indicate that the rated power output of any power tube is not obtained unless the tube is supplied with the maximum allowable A.C. input voltage. Take, for example, the curves for a single 171A, with 40 volts peak on the grid, rated output (700 milliwatts) is obtained; if, however, the grid excitation is only 20 volts peak the power output is 190 milliwatts. Since this is the case we must be sure that in designing audio amplifiers we base the design on this fact—the maximum A.C. voltage required on the grid of the power tube. Let us suppose that a type 250 tube is to be used as the output stage of a two-stage transformer coupled audio amplifier. The two transformers have turns ratio of 3 to 1. We want to determine how much "C" bias is required on the first audio amplifier tube, and we want to know how much voltage the pick-up or detector must supply to the input of the amplifier to get maximum power from the 250. Fundamental circuit, Fig. 2. The 250 requires a peak voltage  $E_i$  of 84 on its grid to supply maximum output. This peak voltage of 84 volts must be obtained from the transformer T2. The voltage across its primary must therefore be

$$E_3 = \frac{\text{voltage across secondary}}{\text{turns ratio}} = \frac{E_i}{T_2} = \frac{84}{3} = E_3 = 28 \text{ volts.}$$

where  $E_3$  = voltage across primary.

Therefore the tube V2 must supply 28 volts to the transformer in its plate circuit. This A.C. voltage in the plate circuit is equal to the A.C. voltage  $E_2$  on the grid of the tube  $\times$  the amplification constant of the circuit. The tube is a 227, amplification factor 8, but in transformer coupled circuits it is only possible to realise about 90 per cent. of the actual MU of the tube. Therefore  $8 \times .90 = 7$ , approximately.

Therefore the voltage E2 must be voltage in plate circuit

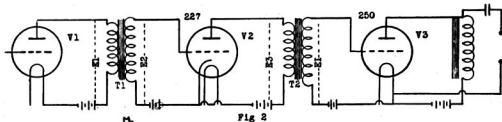
effective MU of the tube

$$= \frac{28}{7} = 4 \text{ volts peak A.C. on the grid of V2.}$$

Since, as pointed out previously, the peak A.C. applied to the grid must

ted from a grid leak and condenser detector from which only 0.3 volts can be obtained without serious distortion. The voltage E<sub>i</sub> applied to the grid of the 250 will then be  $E_i = 63 \times 0.3 = 18.9$  volts, and with this A.C. voltage on the grid, the power output (Fig. 2) will be only 0.29 watts.

Many of us prefer to use resistance or impedance coupled amplifiers. Sup-



never be greater than the "C" bias volts, it follows that the bias C2 required on the grid of V2 must be 4 volts or more; 4.5 would be quite satisfactory.

The voltage E<sub>1</sub> which must be supplied by the detector or pickup is equal to the A.C. voltage E<sub>2</sub> across secondary of T<sub>1</sub> divided by turns ratio 3. Therefore E<sub>1</sub>, the A.C. voltage across the primary of T<sub>1</sub>, is

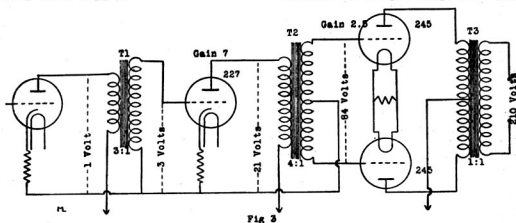
$$E_1 = \frac{\text{voltage across T1 secondary}}{\text{Turns ratio of T1}} = \frac{E_2}{3} = \frac{4}{3} = 1.33 \text{ volts,}$$

which is the voltage the detector or pick-up must supply.

pose we had a single 250 and wanted to supply it from an impedance coupled amplifier, assuming our input to still be 0.3 volts, the gain of the amplifier must be

$$G = \frac{\text{peak voltage required by 250}}{\text{peak voltage from detector}} = \frac{84}{0.3} = 280, \text{ the required gain of amplifier.}$$

Now in an impedance coupled amplifier the only gain is due to the tubes. Suppose we were to use 227's. Their amplification constant is 8, and, assuming we get 90 per cent., the actual gain per stage will be out 7. Therefore, the total number of stages required will be



The voltage gain of the entire amplifier can be determined by multiplying together the various factors we have separately considered. Total gain—

$$G = T_1 \times V_2 \times T_2 = 3 \times 7 \times 3 = 63$$

Suppose such an amplifier is opera-

$$\frac{\text{Total required gain}}{\text{gain per stage}} = \frac{280}{7} = 40 \text{ stages required.}$$

Think of it! But I'll bet there are some who are trying to load a 250 to maximum with one or two stages of impedance coupling. If one has a

special liking for impedance coupling with A.C. tubes, high MU tubes must be used. From these tubes a stage gain of about 20 can be obtained, so the number of stages required will be 280

$\frac{280}{15} = 19$  stages. Rather excessive,

we all agree, but with the latest type tubes this can be brought a little lower. Ordinarily an impedance amplifier uses three coupling units and two valves between input and power valve, and therefore the gain due to the two valves will be  $15 \times 2 = 30$ . The voltage required from the input will be A.C. input voltage

$$\frac{\text{voltage required by 250}}{\text{amplifier gain}} = \frac{84}{30} = 2.8 \text{ volts.}$$

An amplifier in common use to-day is a two-stage transformer coupled affair, with two type 245 valves in push-pull. The A.C. voltage across the secondary of the push-pull transformer can be obtained from the

curves of Fig. 3 by noting that the curve for 245's in push-pull ends at approximately 120 volts, which is the peak A.C. voltage. Since the push-pull input transformer has a ratio of 4 to 1 the A.C. voltage across its primary given by preceding valve is 120

— or 30 volts. The gain of the

4 tube is 7, so the peak A.C. signal on

the grid of this tube will be  $\frac{30}{7} = 4.3$

volts. Therefore for safety the bias should be about 5 volts, which means that the plate voltage ought to be about 100. The A.C. voltage required from the detector is 1.4 volts, since the coupling transformer has a ratio of 3 and 4.3, the voltage on the secondary divided by 3 gives 1.4 as the primary. If the input was only able to supply 1.0 volt the voltage to the power tubes would be  $1.0 \times 3 \times 7 \times 4 = 84$  volts, and from Fig. 2 the power output with 84 volts will be 3 watts.

## BLACKENING ALUMINIUM.

By VK3RX.

The following process is largely used by camera makers and metal workers to obtain a smooth black finish to aluminium panels and articles without the use of paint or enamel.

It is in the form of a bath into which the aluminium is dipped.

Every care should be taken to keep it away from any domestic utensils or food, as it is deadly poisonous.

The bath is prepared as follows:—

Dissolve:—1 oz. ferrous sulphate, 1 oz. white arsenic in 12 oz. hydrochloric acid, then add 12 oz. water.

For panels it is advisable to bend out of sheet lead a tray large enough to take the whole panel when it is lying flat. Pour the solution into the tray, then dip the panel in rapidly and withdraw, holding it by the edges only. Allow it to drain, and repeat until the colour is deep enough.

Then dry off with fine sawdust, and when quite dry brush or spray with thin, clear lacquer to preserve the finish.

The bath may be used repeatedly till exhausted, and, of course, smaller quantities could be made up by keeping the same proportions of the chemicals.

## HARMONICS.

All stations working on the 14 m.c. band are asked to keep watch for FF8SUD (14,156 k.c.), who is endeavouring to contact Australia, at all hours. The QRA of FF8SUD, who is the only amateur in his region, is Jean Barbier, Aoulef (Sahara), via Algiers, North Africa.—BERS195.

The following amateurs, who have been contacted in the past five months by VU2FY, of Coromandel, South India, are reminded that they owe him a QSL:—VK2FY, 2ZW, 2DQ, 2VG, 2XU, 2NR, 3FJ, 3HQ, 3GQ, 3ZL, 3DT, 4BB, 5MU, 5UK, 5GF, 5NR, 5RX, 6FO, 7NC, 7JB. If you have not done your part VU2FY would esteem it a favour if you would do so, because he has mailed you all his QSL card confirming contact.—BERS195.

BERS195 (Moonta, S.A.) writes:—Has anyone heard VIT (Townsville commercial C.W. station) on about 7150 k.c. each morning at 07.18 E.S.T. working with VIJ. The QRM he causes blots out everything for kilocycles around. It is about time something was done to eliminate VIT from the 7 m.c. amateur band.

VU2FY, Coromandel, South India, has already announced his intention of trying to win the Indian section of the October "Centenary" contest.

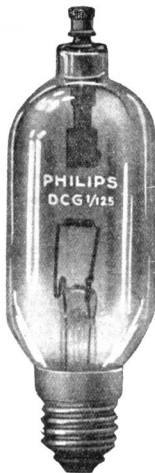


## Philips DCG 1/125 New Mercury Rectifying Tube

### Characteristics:

Filament voltage, 2.0V.  
 Filament current, appr. 5A.  
 Max. permissible inverse, peak voltage, 3000V.  
 Max. rectified current, mean value, 125 mA.  
 Max. permissible peak value of rectified current, 600 mA.  
 Voltage-drop in tube, appr. 16V.  
 Output, 120-170W.  
 Largest diameter, 60 mm.  
 Total length, 150 mm.

The permissible A.C. anode voltage, and the corresponding D.C. voltage continuously supplied by this tube, depend to a large extent on the circuit employed (see below).



### Description.

This rectifying tube has been constructed to supply current for transmitters and power amplifiers. Its cathode consists of a barium-oxide filament, which is characterised by its very high electronic emission at a relatively low current consumption. The DCG 1/125 is a low-vacuum tube; the internal voltage-drop is only 16 volts approx., and is practically independent of the value of D.C. supplied.

Though the dimensions of the tube are comparatively small the efficiency is very high, due to the low loss of energy in the tube.

### Circuits.

An inadmissibly high anode dissipation, such as occurs in high vacuum rectifying tubes, can never be reached in practice with the DCG 1/125 on account of its very low voltage-drop. Further, only the highest current supplied by the filament and the highest voltage which the tube can bear

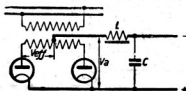


Fig. 1

with negative anode should be taken into account. As a rule, the latter is much lower than for high-vacuum tubes, so that to obtain a sufficiently high D.C. voltage it may be advisable to use a special circuit in which pairs of tubes are connected in series, as indicated in Fig. 4-6. On account of the low voltage-drop in the tube such a circuit does not present any difficulties.

In the table below the D.C. voltage supplied and the mean value of D.C. when using the wiring diagrams as indicated in Fig. 1-4, are stated. The value of  $V_{eff}$  has been selected with a view to attain the maximum permissible inverse voltage (3000 volts).

Circuit.	$V_{eff}$ .	D.C. Voltage $V_a$ .	Maximum D.C. (mean value).
Fig. 1	1050 volts	950-1500 volts	250 milliamperes
Fig. 2	1050 volts	1200-1500 volts	375 milliamperes
Fig. 3	1050 volts	1350-1500 volts	500 milliamperes
Fig. 4	2100 volts	1900-3000 volts	250 milliamperes

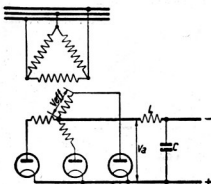


Fig. 2

The D.C. voltage ( $V_a$ ) supplied depends on the load of the rectifier and the capacity of the smoothing condenser C. The upper limit will only be reached when the D.C. supply is zero.

In addition to the circuits specified in these instructions it is, of course, possible to make use of other circuits as well; in this case the following points should always be considered:—

(1) The inverse voltage may never exceed the value of 3000 volts.

(2) The mean value of the D.C. may not exceed 125 milliamps per tube.

(3) The peak value of the D.C. may reach 600 milliamps maximum for each tube.

(4) The temperature of the air surrounding the tube may not exceed 50 deg. C.

It may occasionally be desirable to connect several tubes, type DCG 1/125 in parallel. On account of the negative characteristic of this

centre tapping of the secondary of the filament current transformer or from one of the two ends, as the case may be.

Switch on the filament current, and allow 1-2 minutes for the tube to heat up sufficiently. Only when this condition has been attained should the anode voltage be switched on.

Adjust the filament voltage exactly to the value indicated, but it must be remembered that the D.C. supplied by the tube may not be adjusted by means of a filament resistance.

The voltage and current may never exceed the maximum values indicated.

Before switching off the filament voltage, break the anode voltage. If the filament voltage is interrupted during operation of the tube the latter will, in some instances, apparently continue to function normally. Never make use of this, however, as a means of economising on current, as it will have a detrimental effect on the life of the tube.

As the load of this tube is not limited by the very high saturation current, it is advisable in view of a possible short-circuit in the D.C. output connections (especially the smoothing condensers), to insert a fuse in the anode circuit of each rectifying tube.

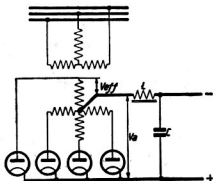


Fig. 3

tube it is essential to insert suitable resistances or smoothing coils in the anode circuit of each, when they operate in phase and are connected in this manner.

In order to obtain well-smoothed D.C. it is advisable to insert a smoothing coil in the D.C. circuit. This smoothing coil must always precede the first smoothing condenser.

## Connection.

The tube has a screw-socket for the filament connection, and a contact on top of the bulb for the anode connection. The tube must always be mounted vertically, e.g., in such a way that the screw-socket is pointing downwards. Care should be taken that air can circulate freely around the tube. If the temperature of the air surrounding the tube is higher than 50 deg. C. artificial cooling will be necessary.

In practical use it is advisable to use A.C. for feeding the filament. It is also very impor-

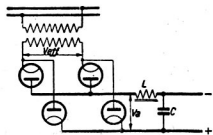


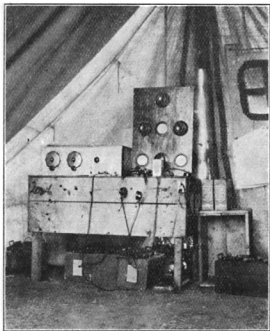
Fig. 4

tant to adjust the filament voltage exactly to the indicated value of 2.0 volts; this voltage must be measured as near as possible to the filament in order to obtain an accurate figure. A higher or lower voltage will result in a much shorter life of the tube. Adjustment of the filament voltage can be effected by means of a resistance inserted in the primary of the filament current transformer. Connection to the positive pole of the D.C. circuit is to be taken from the

## DENILQUIN, MAY, 1934.

Every six months R.A.A.F. cross-country training flights are made to Denilquin. On this occasion 3D4 was unable to go over from Lake Meran owing to a serious illness, but 3B1, 3B3, 3B5, and 3C2 made the trip across. Plans had to be made at very short notice, but largely due to the initiative and organisation of 3C2 everything ran as smoothly as clockwork. The first schedule had been arranged for 0800 hours on the Monday, so arrangements were made for the four VMC men to go across on the Sunday afternoon. 3C2 took his transmitter and receiver, but was undecided about a power supply. It was not known what facilities 2B1, the reserve station at Denilquin, had for working from the 'drome, so it was thought wise to run out to Lake Meran and borrow 3D4's M-L. The trip to Denilquin was uneventful, and, after tea, they all adjourned to 2B1's shack, where the plan of campaign was mapped out. As it was too late to erect the portable out at the 'drome then, it was decided to forward the weather reports at 0800 hours the following morning from 2B1.

Monday dawned beautifully sunny and calm, truly ideal flying weather. The plan decided on the previous night was carried out, and 2B1 and 3B4 remained to contact VJS and forward the weather reports, whilst the other three operators went out to the 'drome and proceeded to erect portable 3C2. The R.A.A.F. ground squad had the tent and one mast ready erected, and, whilst 3C2 connected up the transmitter and receiver 3B5 and 3B1 measured off the aerial and erected the other mast. By the time the aerial was up the station was ready, and VJS was contacted immediately. 3B1 then slipped into Denilquin and brought out 3B4 and 2B1. From then on all traffic was handled from portable 3C2, and signals were reported, R9 to R max., right throughout. A few minutes later a Moth arrived, and at 1042 hours the first Wapiti came in. Three others followed in fairly quick succession. These departed again at intervals after lunch, the last arriving back at 1750 hours. All weather reports, arrival and departure messages, etc., had been received and sent throughout the day without a break. That evening 3B4 and



**Portable 3C2.**

3B1 wrote up the events of the day, while 3B5 and 3C2 explored the town.

Tuesday dawned with the promise of as perfect a day as Monday. The VMC operators had been promised flights, and, as the plane was going up at 0700 hours, all were up bright and early. After breakfasting at 0630, 2B1 was called for, and the short distance out to the 'drome was made in double quick time. The plane was ready to go up, and, whilst 3B4 and 3C2 got the station on the air, the others had a fly over Deniliquin. Unfortunately, time did not permit of making another flight, so 3C2 and 3B4 have a promise of first flight on the next occasion.

Shortly afterwards the first machine left Point Cook, followed at short intervals by the others. They had all arrived by 1230 hours, and as the VMC operators, who had all been extremely busy at their homes, were anxious to get back as soon as conveniently possible, it seemed certain that they would be able to make the trip home that afternoon, instead of having to wait until the following morning. It was decided that the station would be dismantled after "clearing" the machines, and all should go in to 2B1 to take the arrival messages. This plan was carried out, and by 1500 hours the last message was through, and the job was done.

Most trips have their humorous side, and this one was no exception, because it was discovered whilst on the way home and quite three miles out of Deniliquin that all had left their pyjamas at the hotel. After rectifying the omission an uneventful trip back was made.

In all, 42 messages were handled without a miss, and in all respects a hundred per cent. job was put over. The success was due in no small measure to the fine co-operation of 2B1, as well as the initiative and hard work of the VMC operators.

On February 1 a new call system was inaugurated in the Tokyo District. The JI prefixes have been cancelled and all calls which formerly started with JI now start with J2, beginning with J2A. The former J1D0 is now J2GX; J1EE is now J2HT; J1DM is now J2GW; J1EK is now J2HE; J1DV is now J2HV.

## STATION DESCRIPTION VK2KA.

Paul Truman, Wollstonecraft.

Experimental station VK2KA is situated at Wollstonecraft, a suburb on the North Shore line, Sydney.

The transmitter is a four-stage crystal controlled, for use on CW or telephony.

The bottom shelf contains the crystal oscillator, which is a 59 in a Tri-tet circuit.

The middle shelf contains the two buffer-doubler stages. The first stage employs a 247 and the second a TB04/10.

The top shelf contains the final amplifier, which consists of two 210s in push-pull. The final stage is inductively coupled to the preceding stage. The second buffer stage plate coil is centre-tapped, and wound on a 2½ inch former. A coil wound on a ½ inch former is bolted in the centre of the plate tank coil. The ends of this coil go direct to the grids of the final tubes; the centre tap of this coil is taken to the bias resistor of the final amplifier. This method of coupling has been used for over a year, and has proved to be more efficient than the usual capacity method. More output is obtained, and no difficulty was experienced in balancing the push-pull tubes.

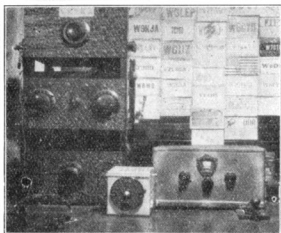
Behind the receiver is the modulator, which employs the Telefunken circuit. The modulator tube is an E415. Two stages of speech amplification are used, both employing E415 tubes. A carbon mike is used, but cannot be seen in the photo. The pick-up and turn-table are in the right of the photo.

The receiver and monitor are on the right of the transmitter. The receiver consists of an electron coupled 57 det. and 227 choke coupled audio.

A combination of resistance and condenser reaction is used in the receiver. By turning a switch an extra stage of audio, using a 247 and driving an 11 in. dynamic, can be utilised. Signals can be copied on the speaker.

The monitor uses an A441 double grid tube, which only requires 9 volts B voltage.

The power supplies are housed in a cabinet under the operating table.



Two supplies are used for the transmitter.

The first power supply consists of an 800 volt C.T. home-made transformer, and 80 rectifier and 6 mfd's. and a 30 hy. choke.

The crystal oscillator and two buffer doubler stages are driven by this supply.

The second power supply drives the final amplifier, and consists of a 1200 volt C.T. transformer, two U8 rectifiers, 6 mfd's. and 30 hy. choke. The U8's have their plates joined together, and are used in a full wave circuit.

A separate transformer is used for the filaments of the final amplifier. Grid leak bias is used for all stages.

The power supply for the speech amplifier is obtained from the receiver pack, which uses a type 80 in the usual circuit.

A half wave 40 metre Zepp is used for both transmitting and receiving. Thirty-one countries in five continents have been worked on the present rig operating on 40 metres only.

## THE 28 MEGACYCLE BAND.

### What are We Going to do to Exploit It?

The following extract of an article in "Break In" we have received from VK2YI, and are printing by courtesy of the N.Z.A.R.T.:-

An enviable record in connection with the pioneering of the first high-frequency bands available to the amateur was built up by New Zealand transmitters in the early days of amateur radio. Since then, however, it would seem that we have been too content to let things slide in doing nothing but duplicate the work of leading amateurs in other countries. This is particularly unfortunate, since we are ideally situated, as a comparatively small sea-surrounded country, for well-nigh perfect reception conditions. We, in fact, should be playing a leading part in investigating the

possibilities for long-distance communication of the 28 mc. and 56 mc. bands.

Our general attitude is that 28 mc. is useless for DX purposes, because we once listened in on that band for an hour and heard no signals. Again, we listened at a time when an American station was definitely known to be on test, and we heard him not. Therefore, we say 10 metres is a hopeless band. How futile!

## How Discoveries are Made.

There is only one scientific way to find whether 28 mc. has any DX. possibilities. All who have worked on 20 metres know that it is a most erratic and tricky band, at times perfectly dead, and a few minutes after alive with real DX. It is therefore not impossible than 10 metres is still more eccentric, but able to provide, even if only a few times a year, unheard of DX facilities. Who knows? There is one way to find out, and it has never been tried out, in spite of its simplicity.

What is required are stations in every continent working over a set period of 24 hours at the week-end, say, from midnight Saturday to midnight Sunday, N.Z. time. A simple procedure of transmitting for 15 minutes and listening for 15 minutes over the full period would be satisfactory. Then if all the world were told beforehand that New Zealand amateurs would be doing this, and amateurs in other countries were carrying out the same procedure during the same period, it would certainly be discovered if 28 mc. was behaving itself during that time. Very likely there would be no contacts the first time, as possibly the band is effective at only certain times of the year. It is obvious, then, that the suggested tests must be carried out every week-end for at least a year. Preferably, of course, the test would be made every day for a year, but this ideal is quite impossible of attainment. The week-end tests for a year would certainly show just where the 10-metre band stood. And what an accomplishment for N.Z. amateurs to pride themselves on afterwards!

## Will YOU Co-operate?

Any amateurs willing to make this suggested sacrifice of their time in the interests of amateur radio are asked to communicate with the editor, who will undertake to discuss the matter with overseas amateur organisations with a view to arranging the tests on the only basis which can lead to the exploitation and the discovery of the possibilities of the 28 mc. band.

Well, Australia, what about pulling in with N.Z. and starting things moving similarly?

## HARMONICS.

A handy support can be made for quick changing of tank coils in a multi-stage transmitter by making use of a bakelite stand off insulators (hollow type), on sale at most radio stores.

Discard the wing nut and bolt and redrill hole to take banana (nickel-type) socket. The tank leads can be taken down through the insulator or from the outside, as desired. Wind tank coils with 10 or 12 gauge copper wire (in my case 2 in. dia.). Take the pretty cover off two banana plugs and solder either end of the coil well into a plug. If a neutralising coil is required this can be wound separately and fitted inside one end of tank coil, soldering one end to the end of the tank coil, the other end going via a piece of flex. to another banana plug and socket.—VK2OJ.

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# The Centenary Single Signal Super

By VK3HK.

(The second part of this article, with full constructional details, will be given next month.)

An up-to-date, efficient receiver will be an essential factor in winning the Centenary contest in October. This single signal super should not cost the ham more than about £12, possibly much less, to build. Success is fairly easy, providing these instructions are closely followed, and the theory of superheterodynes is fully understood. What is single signal? is sometimes asked. Say, for example, you are copying a C.W. signal on 7100 k.c., using a beat note of 1000 cycles or 1 k.c. This means the local oscillation causing the heterodyne is tuned to, say, 7101 k.c. (or it could be 7099 k.c.) Now, say, there is a station starting up on 7102 k.c. This would be heard along with the first signal, and cause QRM. This is all due to the broad tuning response of the detector, since it will receive the signal on 7102 k.c. at practically the same strength as the one on 7100 k.c. (an impossible thing to do, but it will explain things). Then the 7102 k.c. signal would not be heard, as the detector will not respond to it.

This is true single signal effect. In practice a quartz crystal filter is used to provide the ultra selectivity, and is tuned to the intermediate frequency of a super heterodyne. The beat oscillator also beats with the intermediate frequency, and is always on the same side of resonance, so that only one beat note is heard per station instead of one each side of resonance.

## Circuit Analysis.

Employing seven tubes, the first is an sg. rf. amplifier exactly as would be used in the average RF and regen. detector set. This stage should certainly be used as it eliminates any double spot tuning entirely, which is due to the comparatively broad tuning of the first detector. In the second tube, 2A7, we have a triode oscillator using cathode, No. 1 grid (osc. grid), and No. 2 grid (osc. plate). In the same bulb we have an sg. first detector using cathode, No. 3 grid (control grid), No. 4 grid (sg. grid) and plate. Thus it is seen that the first detector

electron stream passes through, and mixes with, that of the local oscillator, so giving the beat or I.F. signal

The following two I.F. stages are standard 460 k.c., and the same construction as is used in B/C receiver practice, but more care is required in decoupling the plate circuits, as precaution against instability, as two stages are employed. Air tuned I.F. transformers were used in the original, and are recommended. The I.F. filter ahead of this I.F. amplifier can be adjusted to pass a band width of a few cycles or so, and so increase selectivity to an extraordinary extent. The second detector circuit employs a diode, and is rather original for this type of receiver. This replaces the triode 56-plate bend detector formerly used, and is satisfactory in every way, and at same time makes easily obtained automatic volume control (A.V.C.), which is so useful in maintaining even volume on QSB phone. The beat oscillator for c.w. uses a 56 or 27 tube, and is a form of series Hartley, which is tuned from 500-5000 cycles either higher or lower than the intermediate frequency, thus giving the heterodyne, the adjustment being by a panel dial with a range of 10,000 cycles or so either side of resonance. The coupling between this oscillator and diode plates is simply an insulated lead from plate of oscillator taken to and twisted around diode plate lead, so forming a very small condenser coupling, which is all that is necessary for satisfactory heterodyning; too much coupling will cause diode to become paralysed. The rest of the line-up is standard practice in B/C supers, using the upper part of 2B7 as an sg. pentode audio driver, feeding the power pentode output. Phones, if used, are capacity coupled in the plate of the 2B7, but they are never used at the writer's station. DX comes through the dynamic speaker. Now for the actual construction. Actual measurements may vary according to the components used. The panel is 14 or 16 gauge aluminium, and 7 in. x 25½ in. All other is of 18 gauge, bolted securely together. The switches, SW1, SW2 and SW3, are mounted at convenient positions between oscillator

padder and beat oscillator control dial on panel.

## Coil Construction.

The RF, detector and oscillator coil forms used were UY tube bases fitted with 2 inch lengths of bakelite tube, with outside diameter of  $1\frac{1}{2}$  inches. To make for easy adjustment of coil turns later when lining up the gang condensers, the bases have tinned wires of about 19 or 20 gauge taken through the prongs and soldered in position, and brought out through the former at the points the ends of the windings are expected to be. The coil ends are simply twisted around the ends of these wires where they emerge from the former, and are quickly adjusted or removed, so saving a lot of labour. When finally adjusted they are soldered, and coils doped with clear lacquer to hold turns fast. The 1050-2100 k.c. coil forms have the grid pin shorted to the cathode pin, as the band spread arrangement is not used.

## I.F. Filter Construction.

The input and output transformers for the crystal filter were made from one 465 k.c. Radiokes air-tuned type I.F. transformer. These have a mid-geet trimmer condenser in top and bottom of can adjustable from either end, and coils are supported on a wooden dowel, horizontally in centre. These coils are removable, so one condenser and one coil is removed.

This coil and condenser is then assembled on a pair of brass brackets in another coil can of similar size, and in the same fashion as the original transformer, so forming two transformers out of one. A careful part of the job now is to wind over, or half on either side on same former, a centre tapped coil of 140 turns of 40 D.S.C. wire, forming the input step-down transformer secondary. This coil must be wound symmetrically with regard to the primary. The output step-up transformer has a similarly wound primary to that secondary, but is not centre tapped and only 70 turns. Symmetry does not matter here. Both these coils need close coupling to their respective primary and secondary. These two transformers give an impedance step down and step up again of approximately 30-1 and 1-30 respectively, and matches the low impedance of the crystal resonator, increasing sensitivity and selectivity.

particularly the latter. The condenser C10 is used to balance out the capacity of the plates of the crystal holder, and so prevent any capacity coupling through the filter. The quartz crystal only passes a narrow band a few cycles wide at the frequency at which it resonates, the I.F. amplifier being tuned to precisely the same frequency. The crystal holder can be constructed just like one used for an oscillator; an air gap mounting helps out selectivity somewhat. The switch S.W.1 is for shorting crystal out for straight super het. operation.

## C.W. Beat Oscillator Construction.

The coil for this is wound on a  $1\frac{1}{2}$  inch diameter bakelite former with 125 turns of 30 D.S.C. wire tapped at 42. This is mounted within a shield can. The tank condenser, C.18, is a standard adjustable mica padder condenser as used for 175 k.c. B/C supers, with a maximum capacity of approx. .001 mfd., and is mounted on top of coil form in can. The resistor of 100,000 ohms in plate supply lead of this oscillator is necessary to stop stray coupling into I.F. amplifier circuits, which took place when it was left out. All the components of this oscillator should be mounted in shield box. All tube sockets in the set except the coil can be of the inexpensive wafer type, and that of this oscillator and also the first oscillator should be preferably shielded below chassis by means of a small aluminium cover over socket.

## Automatic Volume Control.

When the signal is rectified by the diode second detector a negative voltage appears across load resistor (shunted by C.11), with respect to earth and cathodes of the R.F. and I.F. 58 tubes. This feeds back through the grid decoupling resistors, R.1, in each case to grids and biases the same tubes, thus cutting down the gain of the amplifier furnishing the signal. With the values given for grid bypasses and decoupling resistors of 58 tubes the system follows up the fast fading encountered in short wave phone reception excellently.

## General Construction Pointers.

A good solid job should be made of both oscillators' wiring, and No. 16 bus-bar was used in the original. The first oscillator must be very stable to

get the full results from such selectivity as this design provides; in fact, both, but more so the first, as it is operating on a higher frequency. A tank capacity, i.e., padder, is used to provide fairly high C in first oscillator. This, however, cannot be carried too far, as the strength of oscillation falls off. The short wave bands are spread by means of series condensers, with tuning condensers. This method spreads the low frequency end of the band more than the high frequency end, which is very desirable with so many stations at this end. The 14 m.c. band oscillator coil is the same as that used for 7 m.c., as this is more stable than a coil actually for that band. The harmonic is very satisfactory. Taking the I.F. section, the sockets and I.F. transformers should be arranged so that the plate and grid leads are as short as possible to prevent any chance of instability and possible self-oscillation. It will be noticed that .5 mfd. condensers have been used for cathode and s.g. bypasses, as this increase in capacity completely cured some instability. They, however, should be of a noninductive type, or you will be looking for trouble. The switch, S.W.2, is for cutting out the A.V.C. when receiving C.W. signals and S.W.3 for switching in and out beat oscillator when phone or C.W. is received. A word about R7. This may appear unnecessary, but for best quality phone reception on the 200 mx. band the diode should be nearly fully loaded. This resistor cuts down the output voltage when the 247 or 2A5 pentode is used. A 245 or 2A3 or other triode could be used in audio, and changing R7 for an RF choke, of course altering the other resistor values in the audio stage to suit. The jack, J3, has extra contacts that break the screen circuit when the speaker is removed, so preventing the screen from running red hot. The power pack should give 250-300 volts for preference, but 180 volts would work o.k. This is left to the builder, as any power pack on hand could be used if suitable. Bring your heater and B supply leads out through a tube socket, and plug on back of chassis for ease of connecting up, but watch your heater leads for voltage drop, and preferably test voltage on tube sockets when set is running to see if you have 1.5 or 2.5 volts. While on heater voltage, if desired, 6.3 volt automobile type tubes could

be used throughout, i.e., from left to right, 78, 6A7, 78, 78, 6B7 and 41 pentode. The beat oscillator, though, would have to be a s.g. tube, as no triode of this series is available; a 77 as an electron coupled oscillator would be satisfactory. The B supply for the country ham would be a bigger problem, though any B supply unit that is o.k. on a B/C receiver should be o.k., providing it will supply between 70 and 80 m.a. at 250 volts or less at 180 volts.

## FIRST ANNUAL RECEIVING COMPETITION.

**Conducted by the North Suburban Radio Club (3FY).**

The competition is divided into three sections—(a) short wave code reception; (b) short wave fone reception; and (c) broadcast fone reception. Entries are strictly limited to members of the club. No handicaps will be recognised.

**Conditions.—Section (a).—**(1) The competition is to extend over a period of three weeks, commencing on July 2, at 12.01 a.m., and concluding on July 22, at 12 p.m.

(2) The winner of Section (a) will be decided by the number of countries received during the above period, such reception to be verified by QSL cards.

(3) The maximum time allowed for return of QSL's will be three months from the conclusion of the competition.

(4) All QSL's must bear a date mark.

(5) An entrance fee of 6d. will be charged each competitor for each section entered.

(6) The judges' decision is final.

**Section (b).—**(1) The winner of this section will be the competitor having the greatest number of QSL's from fone stations operating on the higher frequencies during the stipulated period.

(2) The highest wave-length in this section is 175 metres.

(3) Conditions (1), (3), (4), (5), and (6) of Section (a) will apply to this section also.

**Section (c).—**(1) The winner of this section will be the competitor having the greatest number of QSL's from fone stations operating on the broadcast band, during the stipulated period, taking into consideration condition (2).

(2) Melbourne and metropolitan A and B class stations will not be recognised.

(3) The wave-length for this section is to extend from 175 metres upwards.

(4) Conditions (1), (3), (4), (5) and (6) in Section (a) will apply to this section also.

The Secretary, Frank Maher (3FZ), appeals to "hams" who receive reports from entrants in this competition to QSL promptly, as they will receive a detailed report on their transmission, plus return postage. Nothing is more discouraging to these chaps—the O.M.'s of the future—than to have their reports ignored, especially when a stamp is enclosed, so please QSL.

For further information re club activities, etc., write to the Secretary at 102 McKean street, North Fitzroy, N7.



# VK3 SECTION NOTES

## Key Section

(Conducted by L. T. Powers, VK3PS.)

With the end of June another year closes for our Institute, as it does for a great many organizations. We look back over our finances and activities for the past year, and our shortcomings loom up very largely. But let us only think of the past with a view to formulating a policy for the future. Radio is a science where progress is an essential. During the past year we have seen a great deal of progress. Our Institute has increased its membership in a very satisfactory manner. "Amateur Radio" has started off on a career that we hope will be long and prosperous, but we must not sit back and say, "This is better, we are going ahead." Every member should do his bit to make our progress even more pronounced, even if he only introduces one new member to the happy family or mentions that he saw an ad. in "Amateur Radio" when he is buying some gear.

By the time this appears in print a new chairman and secretary will be in office, and it is up to you fellows generally to support them. Come forward with suggestions for improving our meetings. If you know anyone who can arrange a visit to A.W.A. installations or some other place of interest let your secretary know, and he will see about arranging for a visit for the gang.

The past year has produced great technical improvements. New tubes and new types of gear have made possible circuits and performance previously considered as out of the question. The ham is a born experimenter, and everyone at some time or other produces some new idea or gets some very big results from a new hook-up. In such cases don't forget that an article on the subject will always be welcomed by the magazine staff or a talk on it will be most interesting and welcome at a section meeting.

Touching on the lighter side of radio, I received a note from a true ham living in one of our northern towns. He has not as yet sat for a ticket, but is a constant listener on 80 and 40 mx. His contribution to these notes shows what can be heard over the air. I pass it on in his own words:—Hrd sum fb fone on 80 mx Friday nite. Voice of well-known ham—"Stand by, om, a YL hr wants to speak to you." YL's voice—"Is that 3\*\*? 1 YW hr, one young woman you know" (nervous little laugh). "I can scarcely believe that you really love me." This message was not intended for me, but I can't help wondering what 3\*\* has been saying!

And following this we see in QST that WIHUG worked W9PET. What is radio coming to?

This is the last time that I will be compiling the Key Section Notes (3KR will be glad of that, as he says I am always dragging up his past). I hope the gang gets a better spin from my successor in the way of news than I have given. Having been on the air only once or twice since Xmas I have lost touch with what is doing, and have not been able to supply any news on conditions, activities, etc.

In conclusion, I would ask you to let your new secretary know any news you hear that will be of interest in the notes, and so assist him in giving us all some interesting dope.

Cheerio, es-vy 73 de.

THORBURN POWERS, VK3PS.

## VK3 Phone Notes

At the phone meeting held on Tuesday, May 29, the Secretary was instructed to send a letter to 3CY, Mr. Arthur Burman, expressing the section's wishes that he would make a very speedy recovery. Due to unforeseen circumstances this work and many other jobs had to be let go by yours truly. However, Arthur, you will without doubt receive your copy of "Amateur Radio," and see that we have not forgotten you, and the message will duly arrive.

At the May meeting also the boys were asked to be ready to make their nominations for office-bearers at the June meeting and as these notes are creating a record this month for being late I can say that nominations were duly received at the June meeting, and every "job" in the section seems to be quite well contested.

We were honoured at this meeting of 29th May by a visitor from VK2 in the form of 2JX. JX was welcomed and "chipped" in the usual way about his wonderful V.I.S., but he informed us that he thought the key section meeting would really be more in his line.

And now the competition for VK3 phone gang is about to commence, and below will be found the schedules for the elimination tests:—

July 8:—  
3DH will operate from 10.30 p.m. to 10.50 p.m.  
3YF will operate from 10.50 p.m. to 11.10 p.m.  
3JB will operate from 11.10 p.m. to 11.30 p.m.  
3FY will operate from 11.30 p.m. to 11.50 p.m.  
3LU will operate from 11.50 p.m. to 12.10 p.m.  
3SB will operate from 12.10 p.m. to 12.30 p.m.

July 15:—The following stations in the order mentioned, times corresponding with the first list:—3RI, 3JR, 3HK, 3CB, 3BY, 3LN.

July 22:—3WF, 3TM, 3HF, 3OV, 3BT, 3PA.

July 29:—3ZO, 3KE, 3XL, 3BH, 3GK, 3YJ.

Country stations are 3GZ, 3BW, 3KW, 3RG, in that order and I understand that entries have been received from the gentlemen at Birchip, 3WE, 3LH and 3CH.

## Some Notes from Radio Papers of 1922 Vintage.

"If your set screams at you, or relapses into utter silence when your hands approach the knobs, you can be pretty sure that some, at least, of the valves are oscillating badly."—Oh, yeah!

"Beginners are puzzled sometimes over the rather critical tuning that is needed on very short wavelengths. The reason is that when we get down to, say, 300 meters the smallest movement of the condenser knob makes a very big difference in the frequency."—What about 5 mx?

"I spent the last two hours of Saturday night and the first two hours of Sunday morning listening for short wavelength signals from America. We logged five amateurs sending c.w., and once caught a faint sound of speech. Just as our hopes ran high a flood of asthmatics drowned the words."—Asthmatics?!

Sydney hams wishing to meet an American ham are advised to visit the Matson liner Mariposa next time it docks, and inquire for "Pooch" Warren (ex W6AB), who is third electrician on the liner. "Pooch" will welcome your visit, VK2's.—Bers, 195 (Moonta, S.A.).

## COUNTRY NOTES

### NORTHERN DISTRICT NOTES. 3WE.

Conditions generally have been particularly patchy during the last few weeks, and, with the exception of the usual Sunday morning skeds (and they, too, have been spasmodic) little has been done. With the exception of 3WE, the Birchip gang have been QRL, although 3CH did come on once or twice, using self-excited on 80 mx, using the DC mains. 3LH is still rebuilding, but is very busy with service work, thanks to the tests. 3PY is also QRL on 80 mx for the same reason, but finds time, along with 3WE and 3GW, to entertain the BCL's on 200 mx. 3GW recently acquired 3CH's old Airforce genny (has a note like the Southern Cross), but has not got it going yet. Most active VK3's worked here were 3ZL, 3DW, 3CE, 3GW and 3WN, but 3HL, 3KE, 3HK, 3YJ and others heard several times. VK2 seems very active on 80 mx—2UO, 2HU, 2FI, 2XU, 2DF, 2TH, TQA, 2RS and 2WH being most consistent. 5MD, 5WJ, 5PK, 5LR are still going strong. 5QR was heard only once, and 7CK and 7JW were heard twice. ZL's very active, the QRO gang being heard nightly working fone with W's, the latter going up to Q5R6 here on RF, det es one audio. We welcome to the gang 3WN, of Sea Lake, chief op, being Jack Lambert, who, as mentioned last month, recently got his ticket. The present perk is a L.C. Hartley, and local D.C. mains. Telefunken, King, 3ZL, like others, is talking of rebuilding, and thinks that suppressor grid modulation might be as good as Telefunken. The Sunraysia duo, 3AN and 3CG, have not been heard lately. We are pleased to learn that our old cobbler, 3OR, has recovered, and is again pounding brass. 3WE is feeling very sore, owing to premature demise of brand new TC04/10 due to damage in railways, package not being labelled fragile.

## THE ASSOCIATION OF RADIO AMATEURS (N.S.W.)

The Executive of the A.R.A. would like to take this opportunity of capitalising the publicity to be secured per medium of "Amateur Radio" by appealing to all VK2 hams and especially members of the A.R.A. to rally to the support of this ham journal. We feel that, although in the past the VK2's have every reason to be proud of the support accorded to date, still at the same time there is no doubt that there are quite a number who could, by sending in their subs regularly and consistently, add a further quota of "push" to this commendable cause.

Even at the risk of "starting something" in the nature of a fight, or at the least securing a few "nibbles," the VK2 hams can, with every justification, claim to be the most solidly organised body throughout the Commonwealth, so in view of this it would indeed be disappointing to find this State taking second place to any of the others in the measure of their support and enthusiasm for their ham paper.

At the present moment N.S.W. is, we understand, taking the second largest number of issues per month, thus giving pride of place in this connection (and in this connection only, Hi!) to VK3. Therefore, VK2's, for the "love of Mike," don't allow this state of affairs to continue. Your Executive is making every effort to bring our sales to a figure in excess

of those obtained by VK3, hence this earnest appeal for support.

Subscriptions at the rate of sixpence per month, or 6/- per annum, post free, to any address within the State, should be sent to the Secretary of A.R.A., Wembley House, 541 George street, Sydney. Also bear in mind that we badly want technical articles, and these will be very much appreciated if sent in to the same address.

F. M. GOYEN, President.

ROBERT H. W. POWER, Secretary.

### MONTHLY MEETING OF A.R.A.

Held 21/6/34.

The usual monthly meeting of the A.R.A. was held at the Y.M.C.A. The minutes of the previous meeting were not read, as it coincided with the dinner, and no ham present was responsible for his action. Hi!

A letter from Federal headquarters was read concerning W.A.C., and the members were very pleased to know the matter had been finalised.

VK2FZ's second op. was welcomed and the Temora gang's congratulations were passed on to the assembled company.

Two new members were then elected to the Committee, VK2CS and VK2DR being the successful ones. This was necessary owing to the resignations of 2XY, and our worthy technical officer, 2JX. The former is going away and 2JX is now associated with the garden city—Melbourne?

After the general business was over, 2LZ and 2ZH held the floor, discussing very ably, single signal supers, which was much appreciated by everyone.

VK2MY expressed his disagreement with QRZ's version of his note "QRZ" describes it as RAC, and the worst of the month. As Mac is always on XTAL, possibly it was someone's bad reading or sending. Here's a suggestion "QRZ": give the date when you hear these power leaks, and the gang can see if they were on at that time.

### A HAM ABROAD.

#### "A.R." Special.

(From A.R.A.'s Special Correspondent, VK2NR.)

The first notes from our correspondent while travelling around the coast of Australia were too sad to publish, but out of them we were able to gather he had a wonderful time at each Australian capital; but, alas, lost the wonderful dinners and suppers soon after. (Curtain.)

Our next note is from Colombo.

"As we entered the artificial harbour of this busy port, heavy rain fell, making the prospect of examining the place in one day rather poor. However, the rain cleared away, and, for Colombo, the day proved very cool.

I had written to VS7GJ, the BERU representative for Southern India, and, although he lives about thirty miles away, he was able to get into Colombo and give me a splendid time, making me feel once again what a splendid body of chaps the hams are.

There are no active hams in Colombo, and generally those who are active in Ceylon must supply their own power from lighting plants and wait months for even the smallest portion of gear, which must arrive from England.

The men here find it difficult to be on the air often, owing to the multiplicity (good word for a CW man) of duties, that we living in Australian cities could not understand.

Unfortunately, I could not go out to see VS7GJ's station, but I looked over the local B.C. station. The high humidity in Ceylon

causes sets that are satisfactory in other countries to break down rapidly.

There is an active club in Ceylon, but it appears to be more in the nature of a S.W. BCL club than a ham gathering.

V87GJ gave me the national dish of curry and rice, and about nine other ingredients. for lunch, and I haven't recovered yet."—2NR.

## ZONE 2 NOTES.

### (Z.O.—VK2HV.)

Andy, of 2NA, should be on very shortly with a SE rig, obtaining power from a small genny. He is P.M. at Delungra, that city (?) being devoid of hams.

2ZP, the once busy northern station, has been QRT for some months, as QRL in the garage business, also YL's versus CQ's. 2HV has been QSO, ZL, VK2, 3, 4 and 5 on the 7 mc. fone during the last couple of weeks, with a 250 helving modulating a 210 in a T.N.T. about 5 watts output. 2HV has a special antenna system. Three bends and three slopes—low, medium, and high angle radiation all combined.

Ivan SEG, late SEG, sure raises the dx. with that xtal dc. (?) sig. 2KR is still going strong with a 201A in a Hartley and uses helving modulation for telephony, with an input of generally 3 watts, with a SW feed antenna. He is now on 227 metres on Sunday from 8 p.m. to 10 a.m., and gets out very well, and is showered with reports from all over the countryside from 75 to 100 miles radius. 2CR hasn't been very active of late, but is rebuilding, and will be on shortly. Jack, his second op., has now obtained his ticket, and will be on fone shortly. 2LM is on occasionally, but seems exceedingly QRL business. 2XQ, the old John, has shifted his QRA from Quirindi to Maitland. 2KN hopes to be on shortly and allows in his rebuilding for QRO. 2NM is heard consistently on 80 mx., and a newcomer, 2KV, hopes to be busting the ether in a month or so.

## ZONE 5 NOTES.

### Jottings from the Mountains.

During the past month or six weeks the 20-metre band has shown a decided tendency towards improvement. As early as 9 a.m. Yanks can be heard weakly, gradually coming up in strength until about 1 p.m., when they are at their best. Many overseas fone stations are as loud as R7 on the speaker at times, which can be held until about 5 p.m., when dx. fades out. 40 metres has been patchy of late, with occasional periods of wonderful dx. conditions. 80 metres is behaving rather well, except for a night or two of QRN. A number of Yanks have already been contacted on this band, usually between 6 and 7 p.m., fairly good reports being given each end. Last year fone was put over the Pacific on two occasions, and it will be interesting to note if this will be done again at this station.

VK2RJ and 2NS went flying through here a few weeks ago, the day before the A.R.A. dinner. They did not know the beanfeast was on, otherwise we may have had them with us. 2RJ is temporarily off the air owing to a broken down genny, but it will not be long before that powerful sig. of 2RJ's is making us sit up and take notice. 2RJ now has a national FB XA receiver, which he says "cannot be beaten."

2NS is not heard much lately—QRL or QYL? 2DR puts out some heavily modulated fone on 80, and it is good to listen to. They say Don is breaking in Floggo as second op. 2YX never seems to be satisfied with 100 per cent. quality. Bill has a wonderful selection of mikes. Heard old Bill, of 2HZ, calling CQ on fone from 2LZ on 20 metres one afternoon.

2XU is another who puts out another nice sig. on 20 metres. 2FI sure makes a row with his fone and CW. Athol is thinking out a scheme to start his motor these cold mornings. 2BP still works a bit of dx. on all bands, but is far from satisfied with the QRM which comes from the rig when using SE oscillator. A scheme has been worked out to combine the tri-tet with an electron coupled oscillator. It looks FB on paper and will be put into operation in the very near future.

## ZONE 6 NOTES.

### (Z.O.—2QA.)

Most of the members of this zone have concentrated on 80 for the winter; conditions are very patchy, skip being very noticeable after about 7 p.m. The ZL's come in very well about sundown, but after that they also fade down.

ENM, Mudjee, in accordance with his usual practice, has again rebuilt. This time he has 47, 46, PP46's, and PP10's, modulated by 4, UX250 tubes in p.p. parallel. The outfit is built rack and panel, aluminium bases and panel, with a profusion of Ferranti meters scattered about the front panel; in spite of all Harry can do, the fone is still good. 2WH, of Forbes, has installed remote control on his outfit. Moved the receiver and the mike along with the starting switch, into the lounge, so that he can sit by the fire these cold nights. Seems to have struck trouble with the modulator, acting as an oscillator, also QRM from test matches. 2LM is rebuilding a 40 metres rig. Also intends trying suppressor grid modulation in the near future. Seems to have the home-made a.c. power supply going fb. now. 2RJ, the old hermit who lives in the bark humpy out Mandurama way, seems to be having a lot of trouble with that haywire outfit of his. Just got things going nicely, a nice new, shiny 75 watter 100 per cent, modulated by a 150 watter. Says "it looks like a UV199, only bigger" nice new a.c. speech amplifier confiscated from 2NS, the old motor-generator rewound, delivering a miserable 2,00 volts, nice matched impedance aerial coupler a la Collins. Everything going fb, was even thinking of installing a set of mirrors so that the meters could be read from the operating position. Evidently the strain was too great on the motor-genny, and it QRT, so the old man is off for a couple more months while someone tries to rewind the genny again. Expects to come on with a brand new comet Pro. FBX receiver. 2NS seems to have abandoned ham radio indefinitely. 2BC has had his call sign confiscated. But why let a perfectly good call sign waste? 2RS has been putting out some very fb fone, alas the wind refused to blow, and Rob's power plant was appropriated to pump water. 2QA rebuilt, now using 47, 46 and 45 modulated helving fashion by a 250, also using the "universal antenna coupler," had some trouble getting the works to mote. Investigation proved that we were using a typical example of the class Z amplifier. The grid of the final stage was tuned to 80, but the plate was tuned to 60. The aerial then being tuned to 80, the business got out all right. Wonder what the harmonic was like on 60 metres. Once again I appeal, if anyone in Zone 6 has any dope, send it along to Jack (2QA).

## ZONE 7 NOTES.

### (Z.O.—2FI.)

On 80 metres during the past month conditions have only been fair, and this band has not yet reached the standard that it was this time last year. At night, most of the local

and interstate fone stations suffer from acute QSB. 2QA and 2FI have decided that 160 metres is a better proposition and hope to explore that region soon.

2JQ has been busy rebuilding, and is incorporating link coupling in the new outfit. Was heard testing fone on 80 metres lately. 2GT has now transferred his gear to Batlow, and should be going strong from the new QRA soon. 2PN on 80 metres once in a while, just to keep the spiders busy rebuilding cobwebs. 2UO active on 80 metres. Bob Smith, the op., is reported to be an authority on YLs. The op. behind 2YW is Doug., ex 2nd op. of 2UO; puts out fone from a MOPA machine, using 45's PP osc. and 46's PP PA.

There are now six hams in Wagga, although 2TZ and 2RH are inactive owing to boarding-house complex inductively coupled to chronic YLitis. 2TH been working DX on 40 when he is not making his head ache with the speech amp. or class B modulators. 2XF making inquiries about generators; he must be going bush again. 2FT spends most of his time trying to make fone go on 80 metres. 2WH has installed remote control and now operates with his feet in the sitting room fire.

It is still possible to tune in 2LB grinding away on 200 metres; it must get pretty stale. Allan.

## ZONE 8 NOTES.

### (Z.O.—20J.)

The old gang is sure making good use of better conditions on 80 mx. and chewing the rag plenty. VKs 2SL, WS, fones R8 and 2ER with 3½ watts R6, ZL1F1 and ZL2BE fones R7. Unusual conditions one morning about 11.15 on 40 mc., when QSO VK3EM, whose sigs. went from R8 to R2 and did not recover. Sigs. also faded in same proportion at EM

VK2QD's electron coupled receiver is nearing completion. Looks an fb. job. Both 2YI and 2QD QRT until their new transmitters are finished. 3-stage xtal and MOPA respectively. Must be a contest near. The next door BC set responds very FB to elix, they say, hence mostly QSK with SE pending shock absorbers. VK2OC heard with well modulated fone on 40 mc. at R6-7.

VK3EG been to VIS again, and spent a few hours here again on his way through.

Conditions for DX. on 40 mx. poor at night. We are having a run of bad QRN.

## NORTH SHORE ZONE.

### (Z.O.—VK2DR.)

The month has been uneventful as far as condx. are concerned. 40 Mx. is settling down to usual winter condx. and 80 is warming up under the influence of R.C.C. hams and others.

The usual Ws and VEs can be heard at good strength in the early evenings, but fade out entirely after about 7 p.m. As usual, condx. liven up again after 11 p.m., and until the wee sma' hours (so the reports go; I certainly haven't been sitting up in the cold shack at these times). Have no hope on early morning condx. Burr-r! Who's out of bed, anyway? 80 mx. isn't as lively as last year, but winter is only a chicken. Plenty of time to warm (?) up yet!

Had a very interesting yarn with 2TH at Wagga. Roy was complaining about the temperature of his shack, so we suggested that he should obtain a kerosene room warmer and sit on it. Roy said the idea was good, but stipulated that an asbestos sheet be inserted between the top of the warmer and his frame. Hi!

Now for the dope. 2FM has been on 40 consistently with xtal note calling DX. 2AG has 4-stage xtal rig, using 47 CO. and 46s. 2AG has reverted from tri-tet 59 to 47 CO. 2AH isn't satisfied with his fb. s.s. super, and is building the one featured in "Frisco Radio." It will be some job, believe me. 2DY has five band exciter unit, driving tens, which are doing their best to drive a couple of big tubes in the final. 2GW recently showed 2AE his 1925 model 10, which, with a 46 doubler, drives a 1925 model RV218. 2GW sent a pwr. tranny west. 2JY is on 20 with five band exciter unit and a rank note. 2PV blew a thermo-couple ammeter. Hard luck, Peter. 2PV rocks in locally, but has difficulty in working DX, owing to poor location of antenna. 2VQ has started up near 2VG with 45s in p.p. and ½-wave zepp. Welcome, OM, and please let me have your news. 2VQ is having trouble with a low type of pirate. Dave, of 2AE, is building xtal tri-tet with 46s in PA. Link coupled. Dave worked J5CC with 15 watts on a 45. Just heard that there is a new ham at Gordon who hasn't received his call yet. More of him next month. 2BJ has joined our very select zone. Hope you rally round with some dope, Kelth OM. Well, old Con (2LZ) is back at it again, having satisfied the R.I. re BCL complaints, and is trouncing 20 mx. on phone in the afternoons, working Ws and Europeans. Con's S.S. super is perking nicely. 2DU is still very QRL business. Dud is ordering still more meters and sa, you should see his collection now. Heard that 2HG is still working DX, late at night on 40. 2HY has erected a new aerial running north-west/south-east, with the result that the first eleven QSO's were 8 Ws, 5VEs and one VS2, whereas Roy could only get Europeans on the old skywire. 2HY has changed over to link coupling, with fb. improvement in efficiency. Roy, of 2HO, was at the A.R.A. annual dinner, cutting down the overload of his plate. 2JU has been heard on fone a bit. 2JV is brushing the cobwebs off his gear in preparation for the annual Uni. chess match. 2KA is also helping with the chess, having finished his rebuilding.

Haven't heard from 2VG this month. Did the A.R.A. banquet get you down, Rex? Andy, of 2VR, has put his 46s up on the shelf, as they've refused to mote. 2XC has been on 40 with T9 sig. QSO W's. Ditto 2XG. 2QO has been on 40, working VKs. Very sorry to hear that 2NE has lost his ticket owing to BCL QRM. Hard luck, OM. The R.I. is still causing chaos amongst the pirates, and good luck to him. 2QR is down with chickenpox, which accounts for lack of notes from that quarter. 2QR has recently made WAC. 2YA is QYL, but is coming on again with tri-tet xtal and E.C.2 Rx. 2ND (now 4ND and B.C. strn 4AY) is going to string a full wave 40 mx. vertical zepp from his B.C. station aerial mast (150 ft. high). Sa, you VK4 chaps, keep a look-out for 4ND. You will find him an fb. chap and keen for a good yarn. Norm. gave me 350 volts' worth of fb. B batteries when he left for VK4, so battery bias is the order of the day with me. 2BA is still trotting around the islands on a steamer and gets on the air every month or so, when the boat is in port. 2DA keeps regular skeds with a VE5 on 40. 2EL is going to ZL, probably permanently. VPIAM (Ocean Island) is on the air and is getting plenty of QSOs. Y' could have knocked Jim (2YC) over with a cat'swhisker when VPIAM answered his call. Believe Jim was using power which would make a fly guffaw. 2YC is using tri-tet on 40 mx., but what with the son and heir cutting his teeth and one thing and another Jim doesn't get over-much time for ham radio.

## VK5 (SOUTH AUST.)

The June general meeting held at the club rooms on Wednesday, June 13, took the form of a social. There was a good attendance, and after the essential business had been disposed of members were treated to a light supper with suitable refreshments.

40 metres still continues to be popular; the DX still being there, although it is hard to get. Rag chews, both local and Interstate, are popular on 80 metres. Now that the QRN has dropped on this band many of the W fones are being heard at quite good strength.

20 metres has been excellent in the afternoons. Several of the local chaps, including 5HG, 5KL, 5JH and 5MK, have been taking advantage of the good conditions.

The single sig. craze still has a hold on the local chaps. 5MY has started one. 5WP has been QRL lately with institute work, and has not had time to get his super copper shielded s.s. perking properly yet. 5RT's new super seems to be a champion. Bob is enthusiastic about the xtal filter in the job. Says that it cuts down the noise level wonderfully, as well as bringing up the signal level.

5WR and 5UK have been heard lately working break in. More of this should be heard on the air. It is not hard to do, and any ham who aims at a modern and efficient station should be able to work it. 5QR is heard in the city occasionally on 80 m.

"Who's afraid of the Big, Bad Wolf?" Listen in on 40 m., and 5NR will tell you. Bill puts out a fone on that band that is really worth listening to.

5MY has been looking worried recently, because another chap in the same street has just got his A.O.P.C. 5FM has a nice fone on 80 m., but has been experiencing some curious effects from it. The fone is being heard on the broadcast band at quite long distances from the xmtr. 5WI was on show at a recent exhibition in Adelaide, together with quite a lot of the gear constructed by the Technical Development Section.

5FG has been experiencing trouble with key clicks, and has to QRT during broadcast hours until the clicks are fixed. 5OK was heard recently with a f.b. T9 note on 40 m. 5LB has been practising on a bug.

Royal Australian Air Force work still keeps 5SU busy. 5CR, a QRP station, is inconsistent, being heard sometimes with a P.D.C. note, and at others with a rotten R.A.C. note that blots out half the band at this location.

5LN hopes to be on soon with a 59 tritrit oscillator and E406 or 210 p.a. Fone will probably be used on 40. 5RF is contenting himself with local rag chews on 40 m., instead of chasing the DX. 5JH wants to revive the old R.C.C. Other starters please get in touch with 5JH.

5ML has joined the navy, so won't be able to entertain the BCL's with his 200 m. transmissions any more. Guess you will soon be having a YL in every port. 5MB's QRA is now Crystal Brook, where he is engineer in charge of the new 6 k.w. 5PI transmitter that relays 5AD's programmes. 5MD has been on quite a lot with a f.b. T9 note from a 3 stage xtal rig. The note is certainly a credit to the station. Rumour has it that 5LD is going to build a xtal rig.

5MZ is a consistent DX getter. Although only a comparatively new ham on the air, MZ has a record that some of the older hams would be proud of. Was recently QSO with an OA. 5HW has given up 20 m., but hopes to have a fly at 80 m. before the winter ends. 5BR puts out some f.b. 80 m. fone from their new QRA, Mont-

pelier street, Parkside, the old home of 5DN. 5HB is often heard on fone on 40 m., but the op. is not so good on the key.

5DT is a new call on the air. It belongs to J. Marr, of Alice Springs, Central Australia. 5DT, who was formerly a VK3, would be pleased to QSO the local boys. 5MK and 5JH can be heard almost every day chewing the rag. 5JH recently had quite a lot of fun putting up a new mast.

5TX, VK5's QRP king, still makes his three watts heard on the air. Has no trouble in working all VK with this huge power. Rig is a mopa, using receiving tubes.

5LG is QRL, with YL's again. Power leaks and hay wire perks also help to keep this station off the air quite a lot. The 3 stage xtal rig has been playing tricks. Note is practically O.K., but Leith has had a lot of trouble trying to cut out the back wave. 5SR has been heard on the air several times lately with a note that sounds like a cross-cut saw feeling crook. Wonder if the club has any monitors? 5XK has not been heard for some time. Says DX is bad. Cheerio,

ERIC HALLIDAY.

## VK6 (WEST AUST.)

On June 7 the usual monthly shack meeting was held at headquarters, with a good muster of members. Those present included 6AG, RL, JK, NJ, PK, KR, CX and CP. General ham discussions were the order of the night, hams comparing hook-ups and modulation systems as used at their various shacks. A movement was mooted, whereby funds might be raised to install testing gear, such as an oscillograph, in the shack. The matter was purely open discussion, and probably the new council will prepare plans for the object in view.

The Vic. Park boys are very consistent in attending these meetings, and headed by PK have always some interesting dope to bring forth. I would like to mention here that those members who treat their division in a matter of course manner would do much better if they were more regular in attendance at these gatherings.

The knowledge gained by general discussion of amateur doings would surprise these hams, and I venture to say put them on the right track to some of their problems which they spend many sleepless nights trying to fathom out. "Nuff sed." The meeting concluded at 10 p.m.

### General Notes.

With the wintry conditions now existing in VIP all the ham bands have become patchy. Severe rain and electrical storms have made conditions so bad that only the most hardened hams have been wasting any time.

On the 20 MX arena some good DX exists during daylight, but the gang here have never cottoned on to this band at all. Spare moments spent by the Ed. listening on 20 MX have failed to hear a VK6. On the 40 MX during the past month the same conditions exist in regard to VK6s.

This band on some nights has been a hive of Ws, and in the later hours Japs. and AUs have been heard, at good QSA 5.

The 80 MX seems to be VK6's paradise just now, and some really good phone can be heard coming from 6SA, MN, SR, HD, RW and CP.

On the key are CY, HW, RS. On one recent evening I heard three KAs and six Ws on this band, but failed to push my sigs. into their cans. Taking this band on the whole, the con-

ditions are in no way comparable with those existing last year, when a short CQ would bring back all the ZLs in that land. The only ZL heard with any degree of comfort is ZL2CP.

## Jottings.

6LJ, after rebuilding and getting out a FB xtal sig., has suddenly gone nesting again, but still finds time to keep the QSL service in order.

6KB again shifted his QRA, but is going to have a job to swing his sky wire.

6FT and 6LK have taken up the serious side of radio, and are now in charge of B class 6AM at Northam. Good luck. By the way, this FB station has just been completed by the daddy of VIP hams, 6AG.

6PK keeps the Vic. Park boys swotting curves and K/cs, and sometimes puts out a hefty sig. on 40 MX late at nights.

6BB has taken another trip to the Eastern States to hunt for bargains. BB has a house full of gear, and can always supply a decent portable rig for stunts.

A recent stunt was the timing of the Light Car Club's tests at Greenmount. BB, SA and JS were the experts, and carried out a very successful day's work. On the way home BB and SA paid a visit to CP, and after examining the junk heap at this station went their way pondering how some hams get sigs. out at all. BB put the meter over the pack, and expressed the opinion that the regulation was not bad, which might mean anything!

SR has now got some fair fone on 80 MX, but has very little time to work it.

MN also heard on 80, with some class fone.

RW is the most consistent fone station going at present, and puts out some good stuff if the local power supply is O.K. He is modulating a pair of E406 amplifiers with genuine B class, and is the only ham here that I have heard to get B class going anyway decent.

Not heard much of late are FO and BO, also NO. 6NO threatens to start up again soon, but so far I have failed to locate him.

6DA has given over the control of 6WF for a period, and is now closer to the city, but has only been heard once.

6CY and HW, the Fremantle boys, are fairly consistent brass pounders on 80.

6AC, the most unlucky ham in this State, does not look like ever being able to get on the air.

6FL, late of Geraldton, but now at Albany, is studying up Centenary contest rules, and getting all O.K. for the big stunt. Sa, o.m., can you stir up the Albany gang, also show them our "Mag."—Ed.

6FM, of Wiluna, sticks to 40 MX and daylight QSOs with some of the city gang.

6RL moving his QRA, and hopes to be perking again very soon.

6CR or 6MU never heard lately.

Quite a few of our locals are now salesmen, and the time taken up at nights demonstrating the mystery of broadcast reception to prospective buyers takes up all their spare time.

6KO still putting out FB fone on 80, and threatens to do some DX on 20 MX.

Since writing above notes a very solid fone QSO took place on Sunday, 10th, between 6MN and CP, both on 20 MX. MN's fone was a revelation, while CP's was decent, and when he gets his aerial O.K. it should be the goods.

It is with deep regret we learn of the death of 3DH's mother. To Ivor Morgan all hams desire to convey their deepest sympathy in his sad bereavement.

## BRITISH NOTES

By G6CL via E.L.S.

We have pleasure in announcing that a special certificate will be awarded to the overseas portable station giving the largest number of points to British portable stations taking part in our second annual national field day event. The event will commence at 1600 GMT, June 9, and will conclude at 1900 GMT, June 10. Over thirty British stations will be in operation, half on 1.7 and 3.5 MC and the remainder on 7 and 14 MC. N.F.D. stations will call test NFD. Claims for the special certificate much reach R.S.G.B. headquarters by June 30, 1934, and may be sent via VK3WL E.L. station. British stations will use a maximum power of ten watts on 1.7MC, and 25 watts on the other three bands. Already advices have been received to the effect that the Egyptian BERU group and the USKA (Switzerland) will be operating portables during this event, and it is hoped that their example will be followed by other organisations and individuals abroad. We shall be pleased to publish lists of the portable calls of such stations if received in London promptly.

The June issue of the T and R Bulletin will mark an important milestone in the history of the RSGB. On July 5, 1913, the Wireless Club of London was formed; it was from this small local club that the present RSGB sprang. It is our intention to celebrate our coming of age in an appropriate manner. The June bulletin will, therefore, contain contributions from many of the early pioneer amateurs in this country, and will, it is hoped, do much to illustrate the enormous strides which the society has made in recent years. A copy of this special issue will be sent free to all interested non-members.

An important step was taken in April, when the society's new research and experimental section was launched. This section supersedes the contact bureau, and, as the name implies, is directed towards the encouragement of research work. Groups have been formed to investigate transmitter, receiver, valve and aerial design, whilst the more general subjects such as 1.7, 3.5, 28 and 56 MC work are fully covered. A contemporary literature group has also been formed as well as groups to study television and atmospherics and fading problems. Co-operation with overseas societies will be welcome.

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# R.A.A.F. Wireless Reserve Notes



## VMB

**Total No. of Messages 191**

**Average per Station 27.3**



## VMC4

**Total No. of Messages 149**

**Average per Station 29.8**



## 2B5:4B1

**Total No. of Messages each 48**

### SECOND DISTRICT.

**(2Z1.—VK2BP.)**

This month sees another section in operation under the leadership of 2D1 (VK2YK). The increase in membership for the period is four, which brings up the total to 24. Many of the stations are showing vast improvements in their operating procedure, and it should not be long before they will be able to compete favourably with our rivals in VMC.

There has only been one resignation to record since the reserve's inception in VMB, and that is VK2FZ, whose business activities were too pressing. Others who have asked for their training to be deferred are 2A4, 2B1 and 2C2. The most active members still appear to be 2B2 and 2B5. It was by their efforts last month that VMB2 carried off the award for the highest section returns in VMA, and 2B5 is to be congratulated for his high total, which gained for him the "star."

Watches are still being held on the 80 metres amateur band, and reception conditions appear to be very favourable, as the signals from 2Z1 transmitter are nearly always reported R7 to R9, both during the daylight and night watches from all parts of the State.

2A3 has been keeping Sunday watches, using a low-powered portable transmitter.

2B1 has been ill as a result of war injuries, but is reported to be improving.

2A2 shifted his address to the Newcastle district, and is back on the air again with his inimitable T9 sigs.

2A6 and 2Z1 are still recovering from the effects of the A.R.A. dinner held on May 17.

2B2 intends altering his power supply. He is always R9 here now. What may we expect in the future?

2B5 never goes to bed while there is a chance of handling traffic.

2C3 is going to buy a "mill" instead of another 211.

2C4 pushes out a very nice sig. from his low power rig.

2D1 another low-powered merchant with a wallop.

2D3 goes to the other extreme, and normally uses about 250 watts input. He lives in the centre of a dozen or so high-powered commercial stations, and talks about "X9."

2D5 also has a quarter kw. outfit at his disposal.

2Z1 never likes to talk about his power input, neither do the tubes in the transmitter.

#### Traffic.

VMB1.—None reported.

VMB2.—2B1 5, 2B2 39, 2B5 48, 2B6 17; total, 109.

VMB3.—2C1 35, 2C3 42, 2C4 5; total, 82.

VMB total, 191.

VMB2 average equals 22.25.

VMB3 average equals 27.33.

### THIRD DISTRICT NOTES.

**(3Z1.—VK3UK.)**

Every June V.M.C. stages its annual relay contest. Each station originates thirty messages and relays as many as possible. Points are allotted on the basis of two for a relay, one for each originated message, and one for each message on hand at the end of the contest. Unfortunately, this June has proved an extraordinarily busy one, with the Fisk trophy contest and test cricket, as well as each member's usual round of activities, and, as a result, only a comparatively few stations were able to participate actively throughout the duration of the contest. After a very exciting tussle, in which the issue was in doubt right to the end, 3A5 beat 3C5 by 451 to 446 points. These two stations are to be congratulated on their great effort, and neither could have begrudged the other the victory. Special mention must be made of 3A5 though, as he has now won the trophy twice in the last three years. It was unfortunate that conditions were too poor to enable VMG to take part, and only five messages were handled with the Tasmanian stations.

The contest, of course, caused a suspension of normal traffic working, and as a result VMC cannot contest the traffic awards this month. However, next month begins the new reserve year, the first year since we gained official status, and at the same time it is Centenary year, so we can look forward to a record-breaking twelve months. VMC's new s/c's take over on July 1, and all sections are "on their toes" to try and establish an early lead in the annual contest for crack section.

I always feel that one of the best methods of training is a co-operative one between districts. Apart from the interest point of view, it assures that unanimity of work and standard of efficiency which is so essential in an organisation such as ours. We have been fortunate enough to have been able to do two



## LATE NEWS

co-operative stunts with VMB recently. Last month 3B1, 3B3, 3B5 and 3C2 carried out a very successful piece of work with a portable station at Deniliquin, and the success was due in no small measure to the 100 per cent. co-operation of 2B1. At very short notice early this month we were required to get weather reports, ground conditions, etc., from three N.S.W. country towns. The enthusiasm and initiative of 2C8 was responsible for bringing this job to a successful conclusion.

### FOURTH DISTRICT NOTES.

Work for the month has been on the up-grade, with the formation of sections and generally getting the sections started in training of members in procedure. The amount of traffic handled by VMD2 speaks well for that section and is a good indication for future totals.

4B3 is managing the procedure first rate and is handling traffic in fine style. 4B2 is finding trouble with his 245 oscillator tubes and fades out on 4155 kcs. after 1900 hours. 4B1 is putting out a fine signal from the "B" batteries, and is looking after VMD2 well. 4A4 contacts 4Z1 direct at present, as 4A1 has not yet taken over s/c duties. 4A2 has been unable to obtain power supply up to the present, but stands by each watch and copies each broadcast from 4Z1. 4Z2 expects to take over duties as deputy by 8/7 to relieve 4Z1 occasionally.

Traffic totals.—4B1, 48; 4B3, 18; 4Z1, 18; 4B2, 7; 4A4, 6.

### FIFTH DISTRICT NOTES.

#### 5Z1 (5SU).

Reserve work has been going along quietly during the last month, and broadcasts have been given as usual on Sunday mornings.

5A1 wishes to inform members of the first section that he has inaugurated a mid-week watch. He will call VME1 stations at 2300 each Thursday on 3555 kcs.

It is hoped that all first section members will attend this watch, as it is essential that we be able to rely on an efficiently organised night watch.

5A2 called in to see 5Z1 and 5A1 while down from Alice Springs, and as he now has two other amateurs with him in the far north we can look forward to some more country members soon.

VMF has not been heard on 4155 kc.

### SEVENTH DISTRICT NOTES.

#### (7Z1.—VK7RC.)

There is nothing startling to report this month. All members have been handling a little traffic.

An invitation was received from 3Z1 to join with VMC in their annual relay contest, for which I would like to thank them, on behalf of the VMG members. 7A1 appears to have speech amplifiers "on the brain," and could not find time to start in the contest. 7A3 could not start either, because his mother is ill, and 7A2 was rebuilding, so that leaves only 7Z1 to uphold VMG's honour. 7Z1 was only on the air for one night during the contest, and that night all VMC signals had disappeared entirely, so that all told 7Z1 sent only five messages. These were sent to 3C4 late one night. I would have very much liked to have entered into this contest with more time at my disposal, but this was impossible. However, better luck next time.

7Z1 and 7A1 are out of stock of message forms, and have been waiting for further supplies to come to hand.

### WESTERN DISTRICT NOTES (3HG-30W).

With the approaching winter months conditions on 80 and 40 meters have grown steadily worse, although DX can be worked on 20. 40 metres is now practically useless, and 80 is very little better. An hour or so after dark fading sets in, and the band becomes dead. However, this may be due to the colder weather keeping the boys by the fireside.

The third R.A.A.F. reserve contest has just concluded, only one Western District station competing, and he seems the likely winner.

3RP, of Geelong, has been staying with friends in this district, and spent an evening at 3PG, together with 3HG and party. 3BW, since his return from his Fiji trip, has been fairly active, and was elated to work a station in Jamaica. 3GQ still rather inactive, due to brisk business in the radio sales line. 3PG has been experimenting with geyser lock, and has ordered a 40-metre crystal to obtain greater 20 metre output. Norm. says his filament batteries go three months on a charge. QRP? Was glad to hear old Murray, 3OR, on the air again after his illness. But say, o.m., whence the back-wave? Can hear it over half the band. Guess you had better put back the crystal and drop grid keying. 3PG and 3HG were in Mt. Gambier recently, and visited 5KR. He is doing a great radio trade there, and has little time for getting on the air. A new-comer is 3CK, in Cobden. He is using low power at present, and his signals are rather chirpy. 3HT is now stationed at Alice Springs, and using the call 5DT. Give him a call, fellows, as he says he is lonely up there!

### VK4 (QUEENSLAND).

The monthly meeting of the Wireless Institute (Queensland division) was held at headquarters, Heindorff House, Queen street, Brisbane, on Friday, June 1, before a large attendance.

The resignation of the treasurer (Mr. R. Browne, 4RB), owing to business reasons, was accepted with regret, and Mr. Houston was elected to fill the position.

Official Operator 4WI.—Mr. V. Jeffs (4VJ).

Calibration Officer.—This position will now be held by 4GK, Wynnum. All meters will be calibrated free of charge, and must be of good construction.

Council.—Mr. H. Lynch (4HL) elected, owing to resignation of Mr. R. Browne (4RB).

At the conclusion of business a lecture on "Wave Propagation" was delivered by Mr. V. Kenna (4FK), and was thoroughly enjoyed by all present. Further lectures are looked forward to by this able lecturer, and members now eagerly await the next one.

All correspondence for the Institute should be addressed to the secretary, Box 1524V, G.P.O., Brisbane.

Conditions in VIB are still very poor on 40 mx, but 20 mx has shown an improvement during the afternoons. W, VE, VP5, X signals are coming in at fair strength. 80 mx seems to be coming popular again, judging by the numbers heard on this band.

4ES, of Kingaroy, is coming in at R7 on 80 mx, with a grid DC note. Uses B batts for high tension. 4PH can be heard sending slow morse on 40 mx for the benefit of student members every Monday and Thursday nights between 6.30 p.m. and 7 p.m., and reports of reception are required. Address, Montague road, South Brisbane.

4JB having a good time on 20 mx with his Hartlev; two new countries being worked, VP5 and X. 4RV, of Cunnamulla, reports that his gear is for sale, this being due to pressure of business. Reg is unable to devote much time

to amateur radio, hence this step. The boys will miss your fb sigs, om.

4US QRL sorting out QSL cards.

4EL, Townsville, still working dx in grand style. Just received batch of African cards. Congrats on WAC om.

4UU has been having trouble with chirps. Have you tried the bird seed remedy, Bill? Ask 4US, hi.

4MC still on QRM Hartley. Has had a lot of trouble with QRM from picture show.

4UK, now of 659 Buthven street, Toowoomba, just completed a TNT for 20 mx, using a TC04/10 with 20 watts input.

Madeline (11-year-old daughter of "Mac," 4GK) is often heard on 40 mx, with a fb fist. She can certainly raise the dx. Seems to be following in the first ops. footsteps all right.

4AW, although QRL on traffic and R.A.A.F. works, seems to find time to go driving with a yl in his Citroen flyer.

4GU putting out some very nice fone lately. Heising modulation, E424, E409 speech amp., 250 mod. We regret to record the death of Mrs. Files, mother of Jack (4JF), and all extend our deepest sympathy in your great loss.

Congratulations to Messrs. G. Harmer and W. J. Berry in securing their tickets at the recent A.O.P.C. exam.

On May 20 a successful 56 mc test was carried out by 4AW, Nundah, and 4GA, Mt. Nebo. On this occasion 4GA reports having received 56 mc telephony from 4AW at R5/7, the distance being 18 miles. The transmitter used by 4AW was a series Hartley, using 210 osc. and Heising mod. Input 20 watts. Cheerio.

73 4RY.

## NOTES FROM VK2XQ, Late of Quirindi Gang.

Noticed old 3EG's remarks about the laxity of the Quirindi gang as to notes in this mag. Just too bad, Ivan, but here goes.

Quirindi and district at present boasts three hams—2KN, 2JF and 2HC. Of these 2KN is the only one active. 2JF been QRT for years.

Old Ray has been on the sick list for few months now, and consequently qrt. Old 2HC, if I know him, would like to be on the air, but the quack says no. Anyway had short QSO with him few days ago, and was pl to hr him agn. Ur fone, Ray, stronger hr than in QDI.

2KN is putting in QRO at present, so guess he will be putting out hefty rig sn. Says he gng put 600 volts on coupla 46's in push-pull P.A. Shud be fb rd.

2XQ is at new QRA, 47 Regent street, West Maitland, after eight years in Quirindi district. Have installed junk hr, and had some fb QSO's with the gang on 40 and 80 mx. The ant. hr is only 20 ft. high, with lots of tall buildings about, also plenty BCL aerials, hi. They haven't found me yet tho, hi. Yanks come in better hr than in QDI, but haven't hrd any western DX as yet.

VK2WU, who is only 200 yards frm hr, is using QRO in a Hartley, and gets out well. Has the best rx I have hrd. It is a superhet., and is a beautiful job, both as regards appearance and performance.

Old Gus, of VK2KR, still QRP with his fone on 80 mx, and gets down hr at R8. Hopes to be QRO when the town supply is converted to A.C. next year.

Haven't hrd 2LM for ages, but hrd someone say he has busted his genny. Hpe hr you sn, Les., or please give me a yell.

VK2VO, of West Maitland, has a very nice outfit, and pushes out an fb T9. Mac. worked his first yank few days ago, fb, using 59 tri-tet on 46 buffer and 46's on push-pull P.A.

Old Stan, of 2KH, is QRL work, etc., but hopes to get on sn. He says his batts are QRT.

2XQ gathered 2WU, 2NU and a BCL, and we went down to meet the Newcastle gang at their weekly meeting, and we had a most enjoyable trip. The gang down there very keen on Centenary contest, and, judging by conversation, the average input per ham will be about half a k.w, hi. Glad you chaps miss out up hr in Maitland, hi.

Sa, Ivan, hw abt a "Back to Quirindi" Week some time, hi. Don't be mistaken, gang, as Quirindi is one of the best lil towns in VK—Tallangatta included, hi.

Well, 73 gang and QSK.

M. JOHN (VK2XQ).

## ATTENTION, HAMS!

We are informed that the 5th Batt. Highland Regiment are anxious to contact suitable ham for senior operator signal section now being formed.

Applicants about 21 years, having some knowledge of construction and general short wave portable sets, etc., should write to 3WG, 2 Anthony street, Glen Iris, S.E.6.

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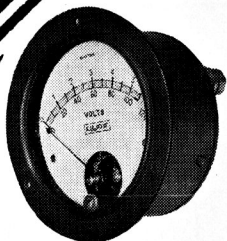
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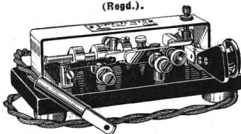
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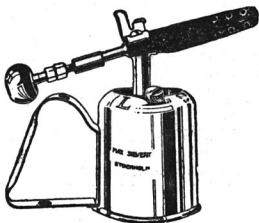


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